PM/ 15410/ 1
July 2020

PRODUCT MANUAL FOR
Plastics Bottles /Containers for Packaged Natural Mineral Water and Packaged Drinking Water According to IS 15410:2003

This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure coherence of practice and transparency in operation of certification under Scheme-I of Bureau of Indian Standards (Conformity Assessment) Regulations, 2018 for various products. The document may also be used by prospective applicants desirous of obtaining BIS certification licence/certificate.

1.	**Product**	:	IS 15410:2003
	Title	:	Plastics Bottles /Containers for Packaged Natural Mineral Water and Packaged Drinking Water - Specification
	No. of amendments	:	5
2.	**Sampling Guidelines**		
a)	**Raw material**	:	Material used for plastic containers shall meet the requirements of Clause 4.1 of IS 15410:2003 and the materials used for top lids etc shall meet the requirements of Cl 4.2
b)	**Grouping Guidelines**	:	Not applicable – samples of each type of bottle/container shall be tested
c)	**Sample Size**	:	10 Filled + 6 Empty + 30 Caps for each variety/size of containers (Declaration of declared wall thickness shall be obtained during the drawl of sample)
3.	**List of Test Equipment**	:	Please refer Annex - B
4.	**Scheme of Inspection and Testing**	:	Please refer Annex –C
5.	**Possible tests in a day**	:	Please refer Annex – D
6.	**Scope of the Licence :**		
	Licence is granted to use Standard Mark as per IS 15410:2003 with the following scope:		
	Name of the product	Plastics Bottles /Containers for Packaged Natural Mineral Water and Packaged Drinking Water	
	Material	PE/PVC/PET/PBT/PP/Polycarbonate/Polystyrene	
	Type of container	Bottle, Jar, glasses, cups etc	
	Nominal Capacity	In ml or litres	

ANNEXURE B
LIST OF TEST EQUIPMENT

Major test equipment essentially required to test as per requirements of Indian Standard.

Sr. No	Test Equipment	Tests used in with Clause Reference
1	Brimful Capacity: i) Suitable plastic disc to cover the neck face of the container ii) Suitable weighing balance to an accuracy of 0.1g iii) Equipments to maintain temperature 27±2°C (or) Suitable measuring cylinders	Cl. 4.4 of IS 15410
2	Wall Thickness: i) Ball ended micrometer or dial caliper gauge fitted with spherical anvils, to an accuracy of 0.02mm	Cl. 4.5 of IS 15410
3	Transparency: Integration ball type light transmittance measurement device as described in Annex A of IS 15410.	Cl. 4.6.2 of IS 15410
4	Leakage Test (a) Closure leakage test (i) Blotting paper (ii) Stop watch (b) Vibration Leakage Test (i) Device /methods meeting conditions mentioned in Cl.6.2.1 of IS 2798 (c)Air Pressure Leakage Test (i) Device /methods meeting conditions mentioned in Cl.6.3.2 of IS 2798	Cl. 4.6.3 of IS 15410
5	Drop Test (i) Equipment /methods meeting conditions mentioned in Cl.8.2 of IS 2798 (ii) Scale to measure a height of 0.5m/1.0m/1.2m	Cl. 4.6.4 of IS 15410
6	Migration Test i) Electric oven/Water bath equipped with temperature controller to maintain desired temperature up to ±1°C accuracy ii) Electric hot plate with temperature control regulator iii) Weighing balance with a sensitivity of 0.1mg iv) Beaker v) Evaporating Dish vi) Suitable scale /caliper to measure dimensions	Cl. 4.6.5 of IS 15410

7	<u>Water PotabilityTest</u> i) Water Heater (to heat water to a temperature of 38±2°C) ii) Equipment to keep the container at a temperature of 38±2°C , for a period of 30 days. iii) Equipments mentioned in IS 3025(Part 5) and IS 3025 (Part 8)	Cl. 4.6.6 of IS 15410

The list above is meant for guidance and may not be taken as exhaustive.

ANNEXURE C

SCHEME OF INSPECTION AND TESTING

1. LABORATORY - A laboratory shall be maintained which shall be suitably equipped (as per the requirement given in column 2 of Table 1) and staffed, where different tests given in the specification shall be carried out in accordance with the methods given in the specification.

1.1 The manufacturer shall prepare a calibration plan for the test equipment.

2. TEST RECORDS – The manufacturer shall maintain test records for the tests carried out to establish conformity.

3. PACKING AND MARKING — The Standard Mark, as given in the Schedule of the licence, shall be marked on each container provided always that the product so marked conform to requirements of the specification.

3.1 Packing and Marking shall be done as per the provisions of the Indian Standard. In addition, the following shall be incorporated on each container:

i) BIS Licence Number CM/L ..... and
ii) BIS website details i.e. "For details of BIS certification please visit **www.bis.gov.in**".

4. CONTROL UNIT – For the purpose of this scheme all the containers of the same type of material, same design/shape manufactured in one shift and manufactured from same consignment of raw material shall be grouped together to constitute a Control Unit.

5. LEVELS OF CONTROL – The test as indicated in column 1 of Table 1 and at the levels of control specified in column 3 of Table 1, shall be carried out on the whole production of the factory which is covered by this plan and appropriate records maintained in accordance with paragraph 2 above.

5.1 All the production which conforms to the Indian Standards and covered by the licence should be marked with Standard Mark.

6. REJECTIONS – Disposal of non-conforming product shall be done in such a way so as to ensure that there is no violation of provisions of BIS Act, 2016. A separate record shallbe maintained giving information relating to the rejection of lots of plastic bottles/containers which do not conform to the specification and the method of their disposal. Such lots, if packed, shall in no case be stored together with those conforming to the specification and Standard Mark(if already applied) on the rejected lots shall be removed/defaced.

TABLE 1
LEVELS OF CONTROL

(Para 5 of Scheme of Inspection and Testing)

(1)				(2)	(3)		
Test Details				**Test equipmentrequirement** R - required (or) S : Sub Contracting permitted	**Levels of Control**		
C1	Requirement	Test Methods			No. of Sample	Frequency	Remarks
		Cl	Ref				
4.1	Material	4.1	IS 15410: 2003	R	One	Every consignment	The sample may be got tested in an approved outside lab. In case the consignment is accompanied with a test certificate from manufacturer, no testing shall be required.
4.2	Design Shapes & Dimensions	4.2	-do-	R	One	Every half an hour	-
4.3	Manufacture , Workmanship, finish & appearance	4.3	-do-	R		Each container	-
4.4	Capacity	5	IS 2798	R	One	Every half an hour	During the beginning five consecutive samples shall be tested and afterwards one sample every half an hour for each machine. In case of failure, all the containers from the preceding half an hour production shall be checked.

(1)				(2)	(3)		
Test Details				**Test equipmentrequirement** R - required (or) S : Sub Contracting permitted	**Levels of Control**		
C1	Requirement	Test Methods			No. of Sample	Frequency	Remarks
		Cl	Ref				
4.5	Wall thickness	4.5	IS 2798	R	One	Every half an hour	During the beginning five consecutive samples shall be tested and afterwards one sample every half an hour for each machine. In case of failure, all the containers from the preceding half an hour production shall be checked.
4.6.2	Transparency	Annex A	IS 15410: 2003	R	One	Every half an hour	During the beginning five consecutive samples shall be tested and afterwards one sample every half an hour for each machine. In case of failure, all the containers from the preceding half an hour production shall be checked.
4.6.3	Leakage test	6	IS 2798	R	One	Every hour	In case of failure, five samples from every hour production to be tested. For this every hour production is to be kept separate. In case of failure another two samples to be tested, in case another failure is observed, the whole lot is rejected.
4.6.4	Drop test	8	IS 2798	R	One	Every 4 hours	- do -

(1)				(2)	(3)		
Test Details				**Test equipmentrequirement** R - required (or) S : Sub Contracting permitted	**Levels of Control**		
C1	Requirement	Test Methods			No. of Sample	Frequency	Remarks
		Cl	Ref				
4.6.5	Migration test	6	IS 9845	R	One	Every 24 hours	In case of failure, one sample from every hour production to be tested. For this every hour production is to be kept separate. In case of failure another two samples to be tested, in case another failure is observed, the whole lot to be rejected. Separate tests shall be done for different mixture.
4.6.6	Water potability	Annex B	IS 15410: 2003	S	6	Every month	-

Note-1: Whether test equipment is required or sub-contracting is permitted in column 2 shall be decided by the Bureau and shall be mandatory. Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empanelled by the Bureau.

Note-2: Levels of control given in column 3 are only recommendatory in nature. The manufacturer may define the control unit/batch/lot and submit his own levels of control in column 3 with proper justification for approval by BO head.

ANNEXURE D

POSSIBLE TESTS IN A DAY

i) Design, Shape and Dimensions
ii) Manufacture, Workmanship, Finish and Appearance
iii) Capacity
iv) Wall thickness
v) Transparency
vi) Closure Leakage
vii) Air pressure leakage
viii) Drop test